

UNCLASSIFIED

AD NUMBER

AD367484

CLASSIFICATION CHANGES

TO: unclassified

FROM: confidential

LIMITATION CHANGES

TO:

Approved for public release, distribution unlimited

FROM:

Distribution: USGO: others to Director,
Defense Atomic Support Agency, Washington,
D. C. 20301.

AUTHORITY

DSWA ltr., 18 Apr 1997; DSWA ltr., 18 Apr 1997

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BUREAU OF SHIPS GROUP
TECHNICAL INSPECTION REPORT

367484

Classification (~~Cancelled~~) (Changed to **CONFIDENTIAL**)
By Authority of ~~Joint Chiefs of Staff Action~~ **15 APR 1989**
By ~~Admiral R. B. Barker~~ **4 Apr 81**
1st Lt. A. P. SWP

OPERATION CROSSROADS.
U.S.S. CRITTENDEN (APA 77).

TEST BAKER [U].

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11 1947,
12 57p.

Director
Defense Atomic Support Agency
Washington, D. C. 20301

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OPERATION CROSSROADS

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TECHNICAL INSPECTION REPORT

Classification (Cancelled) (Changed to **CONFIDENTIAL**)
By Authority of Joint Chiefs of Staff Action of 11 April 1949
By Admiral P. B. DeLoach 24 April 1949
H. AFSWP

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F.X. Forest,
Captain, U.S.N.
U.S.S. CRITTENDEN (APAT)

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GROUP 3 1 JAN 1965
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USS CRITTENDEN (APA77)

U.S.S. CRITTENDEN (APA 77)

SHIP CHARACTERISTICS

Building Yard: Consolidated Steel Corp.; Wilmington,
California.

Commissioned: 17 January 1945.

HULL

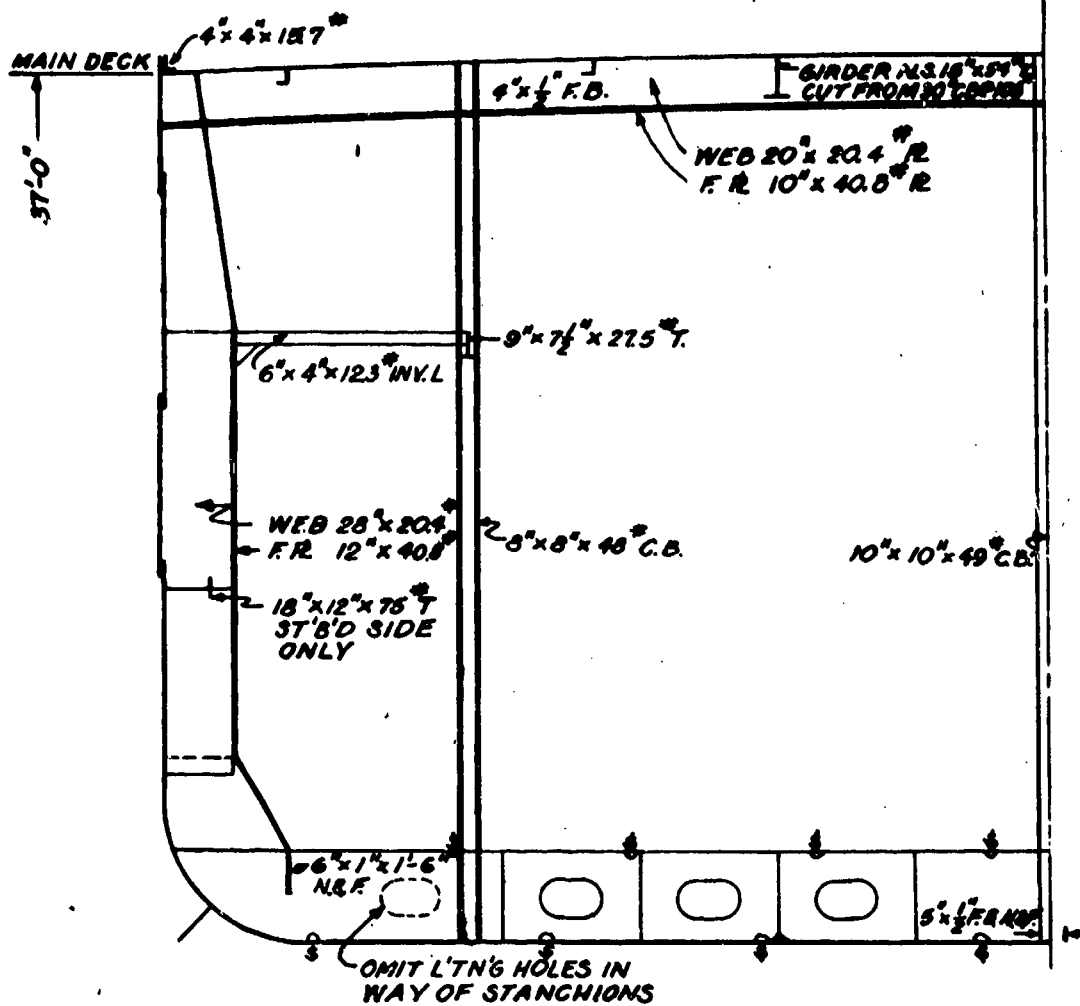
Length Overall: 426 feet 0 inches.
Length on Waterline: 400 feet 0 inches.
Beam (extreme): 58 feet 0 inches.
Depth (molded to upper deck): 37 feet 0 inches.
Drafts at time of test: Fwd. 8 feet 6 inches.
Aft. 17 feet 6 inches.
Limiting displacement: 7,080 tons.
Displacement at time of test: 5,605 tons.

MAIN PROPULSION PLANT

Main Engines: Two sets of Westinghouse steam turbines, directly connected to Westinghouse main generators. Two main shaft motors.
Main Condensers: Two are installed in ship.
Boilers: Two Babcock and Wilcox Boilers are installed in ship. 450 psi gauge - 750° F.
Propellers: Two are installed.
Main Shafts: Two are installed in ship.
Ships Service Generators: Five are installed in ship. Two - 250 KW. - 450 V. - A.C., One - 150 KW. - 450 V. - A.C., and Two - 100 KW. - 120/240 V.-D.C.

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MIDSHIP SECTION
FRAME 76 LOOKING AFT
TEST B

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U.S.S. CRITTENDEN (APA 77)

TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

I. Target Condition After Test.

(a) Drafts after test, general areas of flooding, sources.

There is no flooding, hence no change in drafts or list.

(b) Structural damage.

HULL

There is increased deflection of the upper deck and starboard shell in way of areas previously damaged in test A. This is accompanied by increased distortion of supporting frames, stanchions, and bulkheads.

MACHINERY

No comment.

ELECTRICAL

None observed.

(c) Other damage.

HULL

Not observed.

MACHINERY

There was no damage to machinery of this vessel, insofar as could be determined from visual inspection.

ELECTRICAL

No electrical equipment appeared to be damaged as a

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USS CRITTENDEN (APA77)

result of this test. Operability tests were not made on the equipment, however, no damage could be detected from visual examination.

II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL

No effects.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of heat.

(b) Fires and explosions.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of fires or explosions.

(c) Shock.

HULL

The effects of shock are slight and are difficult to distinguish from those of heavy rolling. An anvil is broken loose from its hold-down clips, a radio amplifier is displaced from its

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USS CRITTENDEN (APA77)

stowage rack, and medical supplies are dislodged from stowages. In the machinery spaces some lagging is shaken loose and the lens of an inclinometer is broken.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of shock affecting electrical equipment. There was evidence that the vessel received underwater shock since loosely stowed gear was disarranged inside of the vessel. There were also a few fragments of steel on the deck which came from some source other than this vessel, possibly LSM 60. These fragments caused no damage to the electrical equipment on this vessel.

(d) Pressure.

HULL

The effects of air blast are difficult to distinguish from those of falling water and the wave which washed over the deck. The combination of these caused damage to the shell and upper deck in the forward hold area. Temporary closures of cargo hatches, ports, and access openings are demolished. The underwater hull is apparently unaffected.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of pressure affecting electrical equipment. There was evidence that the vessel received some pressure in the form of air blast or falling water since some wooden shoring material and jury rigged hatch covers were blown off.

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USS CRITTENDEN (APA77)

(e) Effects peculiar to the atomic bomb.

HULL

Effects peculiar to the atomic bomb are the violence of the explosion and radiological contamination.

MACHINERY

None.

ELECTRICAL

There were no effects noted that are considered peculiar to the atomic bomb other than radioactivity.

III. Results of Test on Target.

(a) Effect on machinery, electrical and ship control.

HULL

Not observed.

MACHINERY

None.

Note: No machinery on this vessel was operated after test B.

ELECTRICAL

None.

(b) Effect on gunnery and fire control.

HULL

Not observed.

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MACHINERY

No comment.

ELECTRICAL

None.

(c) Effect on watertight integrity and stability.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

None.

(d) Effect on personnel and habitability.

HULL

Personnel and habitability would have been principally affected by radiological conditions. Personnel exposed topside probably would have been injured by air blast, falling water, and the inundating wave.

MACHINERY

None, except for radioactivity.

ELECTRICAL

Except for the effects of radioactivity, it is considered that personnel and habitability would not have been affected by the test.

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(e) Effect on fighting efficiency.

HULL

Except for the effects of radiological contamination, the fighting efficiency of the ship is not affected appreciably.

MACHINERY

None.

ELECTRICAL

Fighting efficiency would not be affected by this test unless personnel casualties resulted from the radioactivity.

IV. General Summary of Observers' Impressions and Conclusions.

HULL

The principal effects on a ship at this distance from an underwater burst apparently are from air blast, falling water and large waves.

MACHINERY

The CRITTENDEN was outside the effective range of the explosion in test B except for radioactivity. As she was fully operable she could probably have steamed out of the area of contaminated water without being seriously affected.

ELECTRICAL

Although there was some evidence that the vessel received underwater shock and was subjected to air blast or water pressure, there was no electrical damage as a result of this test. It is therefore concluded that this vessel was too far from the center of the blast to be damaged.

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USS CRITTENDEN (APA77)

V. Preliminary Recommendations.

HULL

None.

MACHINERY

None.

ELECTRICAL

None.

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TECHNICAL INSPECTION REPORT

SECTION I - HULL

GENERAL SUMMARY OF HULL DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

There is no flooding, hence no change in drafts or list.

(b) Structural damage.

There is increased deflection of the upper deck and starboard shell in way of areas previously damaged in Test A. This is accompanied by increased distortion of supporting frames, stanchions, and bulkheads.

(c) Other damage.

Not observed.

II. Forces Evidenced and Effects Noted.

(a) Heat.

No effects.

(b) Fires and explosions.

None.

(c) Shock.

The effects of shock are slight and are difficult to distinguish from those of heavy rolling. An anvil is broken loose from its hold-down clips, a radio amplifier is displaced from its stowage rack,

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USS CRITTENDEN (APA77)

and medical supplies are dislodged from stowages. In the machinery spaces some lagging is shaken loose and the lens of an inclinometer is broken.

(d) Pressure.

The effects of air blast are difficult to distinguish from those of falling water and the wave which washed over the deck. The combination of these caused damage to the shell and upper deck in the forward hold area. Temporary closures of cargo hatches, ports, and access openings are demolished. The underwater hull is apparently unaffected.

(e) Effects apparently peculiar to the atom bomb.

Effects peculiar to the atom bomb are the violence of the explosion and radiological contamination.

III. Effects of Damage.

(a) Effect on machinery, electrical and ship control.

Not observed.

(b) Effect on gunnery and fire control.

Not observed.

(c) Effect on water-tight integrity and stability.

None.

(d) Effect on personnel and habitability.

Personnel and habitability would have been principally affected by radiological conditions. Personnel exposed topside probably would have been injured by air blast, falling water and the inundating wave.

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USS CRITTENDEN (APA77)

(e) Effect on fighting efficiency.

Except for the effects of radiological contamination, the fighting efficiency of the ship is not affected appreciably.

IV. General Summary of Observers' Impressions and Conclusions.

The principal effects on a ship at this distance from an underwater burst apparently are from air blast, falling water and large waves.

V. Preliminary General or Specific Recommendations of Inspection Group.

None.

VI. Instructions for loading the vessel specified the following:

ITEM	LOADING
Fuel Oil	Full
Diesel Oil	Full
Ammunition	100%
Potable and reserve feed water	95%
Salt water ballast	None

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report, submitted by the ship's force in accordance with "Instructions to Target Vessels for Tests and Observations by Ship's Force" issued by the Director of Ships Material. This report is available for inspection in the Bureau of Ships Crossroads Files.

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USS CRITTENDEN (APA77)

DETAILED DESCRIPTION OF HULL DAMAGE

A. General Description of Hull Damage.

(a) and (b) Overall condition of vessel.

Little increase in damage occurred in Test B. There is apparently some additional deflection of the upper deck, frames 30 to 40 starboard, and additional wrinkling of the starboard shell plating forward. Temporary canvas and wooden covers over openings damaged in Test A, are pushed into the interior spaces. One plating puncture and a number of dents resulted from fragments believed to have come from the bomb carrier. General exterior views of the ship after Test B are shown on pages 33 , to 40 .

(c) Apparent causes of hull damage.

All damage is considered to have been caused by blast pressure falling water, and the wave which washed over the ship.

(d) Principal areas of flooding with sources.

No flooding.

(e) Residual strength, buoyancy, and effect of general condition of hull on operability.

Buoyancy, and operability are not affected. Evidence exists that Test B caused increased reduction in strength at the forward quarter point.

B. Superstructure.

(a) Description of damage.

No structural damage occurred in the superstructure as a result of Test B. There is no evidence of heat or fire. Mattresses and other materials stuffed into air ports in the forward face of the

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USS CRITTENDEN (APA77)

bridge structure are pushed in. Topmasts, severely bent and weakened in Test A, did not carry away as a result of Test B. Jury rigged antennae, installed for Test B, are blown down.

C. Turrets, Guns and Directors.

Guns and directors are not affected. The previously dislocated 40MM director foundation on the after deckhouse top, port, shows no additional displacement (photo 2153-10, page).

D. Torpedo Mounts, Depth Charge Gear.

Not Applicable.

E. Weather Deck (upper deck).

The weather deck has suffered little damage as a result of Test B. Bent stanchions in the CPO quarters, main deck, starboard, frames 30-40, indicated that a four-inch additional deflection of the upper deck already weakened in Test A, occurred in this area.

Temporary closures installed to replace those damaged in Test A are generally demolished or pushed into the interior spaces. Examples of this are the wooden closures over weather doors to the wardroom, boat repair shop, and ordnance workshop; canvas, supported by wood or angle framing, over both cargo hatches and the ammunition hatch at frame 56; and mattresses and rags which were stuffed into airports and plating ruptures (photos 4217-6, 9, 10, 11, pages , , , and). All topside canvas is torn. Temporary canvas screens used to replace joiner bulkheads in office spaces are blown down, but the canvas itself is not damaged.

Maximum-minimum thermometers in 40MM clipping room, A-0101-M, and in magazine, C-0104-M, are broken by shock.

The forward end of the starboard boat boom was jarred out of its cradles. The taffrail log boom, port side, aft, carried away. The belly float and other fittings on the airplane, left on board for the test, fell to the deck and the plane was knocked off its stowage blocks. The stern speed light screen was blown to the deck.

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There are several dents and one puncture caused by fragments believed to have come from the bomb carrier. One fragment, consisting of a piece of steel about 7 pounds in weight, made a dent approximately 1-1/2" deep in the upper deck at frame 99, starboard. Another fragment, about 4 pounds in weight, made a dent and puncture in the upper deck at frame 132 port. These fragments appeared to be parts of machinery. (Photos 4217-4, 5, 8, pages , , and).

F. Exterior Hull (above waterline).

Some additional wrinkling of shell plating occurred as a result of Test B. Compare Test A photos showing wrinkles in the starboard shell, frames 55-58, with photo 1712-1, page .

G. Interior Compartments (above waterline).

There is little additional damage in interior compartments. There is some indication of additional deflection of the upper deck, starboard, in way of the forward and after cargo hatches. Ventilation ducts in the cargo hatch spaces appear to have suffered slight additional damage.

A radio broadcast amplifier in crews messing compartment, B-102-L, main deck, port, was jarred off a rack and has fallen to the deck. A blacksmith's anvil is broken loose from its hold-down straps, at frame 137, upper deck, port. Medical supplies stowed in racks, are dislodged and broken. Equipment displacement of this type could have been caused either by shock or rapid motion of the ship. An engine room inclinometer showed an 18° starboard roll and a 28° port roll. Bulkhead 68 appears lightly bulged at the first platform level.

H. Armor Decks and Miscellaneous Armor.

Not Applicable.

I. Interior Compartments (below waterline).

Machinery spaces show slight indications of shock.

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USS CRITTENDEN (APA77)

A slight amount of insulation is shaken down and the glass cover of an inclinometer is broken in the forward machinery space.

J. Underwater Hull.

There is no known damage to the underwater hull, shafts, propellers, or rudder. Buoyancy, operability, and maneuverability are not affected.

K. Tanks.

No damage to tanks has been observed.

L. Flooding.

There is no flooding.

M. Ventilation.

Ventilation ducts suffered slight additional damage in the cargo hatch area.

N. Ship Control.

In the steering engine room there is a small leak in an oil line. The steering rams indicate almost complete movement, but the rudder angle indicator shows only 10° left rudder.

O. Fire Control.

Fire control is unaffected.

P. Ammunition Behavior.

Ammunition is unaffected.

Q. Ammunition Handling.

No damage is known to have occurred to ammunition hoists or handling devices.

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R. Strength.

There is no indication of hog or sag. Additional strain to structure in way of structural discontinuities in the cargo hatch areas, forward, is indicated by increased wrinkling of the starboard shell plating, from the bow to frame 52. Panel deflection under blast is limited to increased deflection of the upper deck, frames 30 to 40, starboard, and slightly increased damage to joiner bulkheads.

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USS CRITTENDEN (APA77)

TECHNICAL INSPECTION REPORT

SECTION II - MACHINERY

GENERAL SUMMARY OF MACHINERY DAMAGE

I. Target Condition After Test.

- (a) Drafts after test; list; general areas of flooding, sources.

No data taken by machinery group.

- (b) Structural damage.

No comment.

- (c) Other damage.

There was no damage to machinery of this vessel, insofar as could be determined from visual inspection.

II. Forces Evidenced and Effects Noted.

- (a) Heat.

No evidence.

- (b) Fires and explosions.

No evidence.

- (c) Shock.

No evidence.

- (d) Pressure.

No evidence.

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(e) Any effects apparently peculiar to the Atom Bomb.

None.

III. Effects of Damage.

(a) Effect on machinery and ship control.

None.

Note: No machinery on this vessel was operated after Test B.

(b) Effect on gunnery and fire control.

No comment.

(c) Effect on watertight integrity and stability.

No comment.

(d) Effect on personnel and habitability.

None, except for radioactivity.

(e) Total effect on fighting efficiency.

None.

IV. General Summary.

The CRITTENDEN was outside the effective range of the explosion in Test B except for radioactivity. As she was fully operable she could probably have steamed out of the area of contaminated water without being seriously affected.

V. Preliminary Recommendations.

None.

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DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

(a) Overall condition.

The overall condition of machinery appears to be unchanged by Test B.

(b) Areas of major damage.

There are no areas of major damage.

(c) Primary causes of damage.

None.

(d) Effect of target test on overall operation of machinery plant.

Since no damage was sustained, there was no effect on the overall operation of the machinery plant, so far as can be determined from visual inspection.

Note: A visual inspection was made of the entire machinery plant. There was no opportunity to operate the machinery after Test B and this report is based entirely on visual inspection. The machinery appears to be undamaged.

B. Boilers.

The boilers were visually inspected and no damage to air casings, fittings, fuel oil burners, brickwork, drums tubes or foundations was found. The stacks and uptakes were not affected by Test B although a pin hole was found in the inner casing of #1 uptake. This is believed to have been made during welding repairs after Test A. (Photographs 4217-2 and 3; pages 5, and 6).

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USS CRITTENDEN (APA77)

- C. Blowers, Forced Draft.
 No apparent damage.
- D. Fuel Oil Equipment.
 No apparent damage.
- E. Boiler Feedwater Equipment.
 No apparent damage.
- F. Main Engines.
 No apparent damage.
- G. Reduction Gears.
 Not applicable.
- H. Shafting and Bearings.
 No apparent damage.
- I. Lubrication System.
 No apparent damage.
- J. Condensers and Air Ejectors.
 No apparent damage.
- K. Pumps.
 No apparent damage.
- L. Auxiliary Generators.
 No apparent damage.

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M. Propellers.

Undamaged. The propellers were observed from the surface of the water.

N. Distilling Plant.

No apparent damage.

O. Refrigerating Plant.

No apparent damage.

P. Winches, Windlasses, and Capstans.

No apparent damage.

Q. Steering Engine.

No apparent damage.

R. Elevators, Ammunition Hoists, Etc.

No apparent damage.

S. Ventilation (Machinery).

No apparent damage.

T. Air Compressors.

No apparent damage.

U. Diesels (Generators and Boats).

No apparent damage.

V. Piping.

No apparent damage.

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W. Miscellaneous.

No apparent damage.

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TECHNICAL INSPECTION REPORT

SECTION III - ELECTRICAL

GENERAL SUMMARY OF ELECTRICAL DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

Not observed.

(b) Structural damage.

None observed.

(c) Other damage.

No electrical equipment appeared to be damaged as a result of this test. Operability tests were not made on the equipment, however, no damage could be detected from visual examination.

II. Forces Evidenced and Effects Noted.

(a) Heat.

There was no evidence of heat.

(b) Fires and explosions.

There was no evidence of fires or explosions.

(c) Shock.

There was no evidence of shock affecting electrical equipment. There was evidence that the vessel received underwater

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USS CRITTENDEN (APA77)

shock since loosely stowed gear was disarranged inside of the vessel. There were also a few fragments of steel on the deck which came from some source other than this vessel, possibly LSM 60. These fragments caused no damage to the electrical equipment on this vessel.

(d) Pressure.

There was no evidence of pressure affecting electrical equipment. There was evidence that the vessel received some pressure in the form of air blast or falling water since some wooden shoring material and jury rigged hatch covers were blown off.

(e) Any effects apparently peculiar to the atom bomb.

There were no effects noted that are considered peculiar to the atomic bomb other than radioactivity.

III. Effects of Damage.

(a) Effect on electrical equipment and ship control.

None.

(b) Effect on gunnery and fire control.

None.

(c) Effect on watertight integrity and stability.

None.

(d) Effect on personnel and habitability.

Except for the effects of radioactivity, it is considered that personnel and habitability would not have been affected by the test.

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USS CRITTENDEN (APA77)

(e) Total effect on fighting efficiency.

Fighting efficiency would not be affected by this test unless personnel casualties resulted from the radioactivity.

IV. General Summary of Observers' Impressions and Conclusions.

Although there was some evidence that the vessel received underwater shock and was subjected to air blast or water pressure, there was no electrical damage as a result of this test. It is therefore concluded that this vessel was too far from the center of the blast to be damaged.

V. Any Preliminary General or Specific Recommendations of the Inspecting Group.

None.

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USS CRITTENDEN (APA77)

DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

A. General Description of Electrical Damage.

(a) Overall condition.

No damage from Test B.

(b) Areas of major damage.

No damage.

(c) Primary cause of damage in each major area.

No damage.

(d) The effects of the target test on the overall operation of the electric plant.

Although operability tests were not conducted, the overall operation of the electric plant was apparently unaffected by this test.

B. Electric Propulsion Rotating Equipment.

No damage.

C. Electric Propulsion Control Equipment.

No damage.

D. Ship's Service Generators.

No damage.

E. Emergency Generators.

There was no damage evident from visual inspection. This emergency generator was operating during the test and the

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USS CRITTENDEN (APA77)

Electronic Section reports that the TAJ continued to send signals after Zero time. Power for the TAJ was being supplied by the Emergency Generator.

F. Switchboards and Distribution Panels.

No damage.

G. Wiring, Wiring Equipment and Wireways.

No damage.

H. Transformers.

No damage.

I. Submarine Propelling Batteries.

Not applicable.

J. Portable Batteries.

No damage.

K. Motors, Motor-Generator Sets and Motor Controllers.

No damage.

L. Lighting Equipment.

No damage.

M. Searchlights.

No damage.

N. Degaussing Equipment.

No damage.

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O. Gyro Compass Equipment.

No damage.

P. Sound Powered Telephones.

No damage.

Q. Ship's Service Telephones.

Not applicable.

R. Announcing Systems.

No damage.

S. Telegraphs.

No damage.

T. Indicating Systems.

No damage.

U. I.C. and A.C.O. Switchboards.

No damage.

V. F.O. Switchboards.

No damage.

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SECTION IV

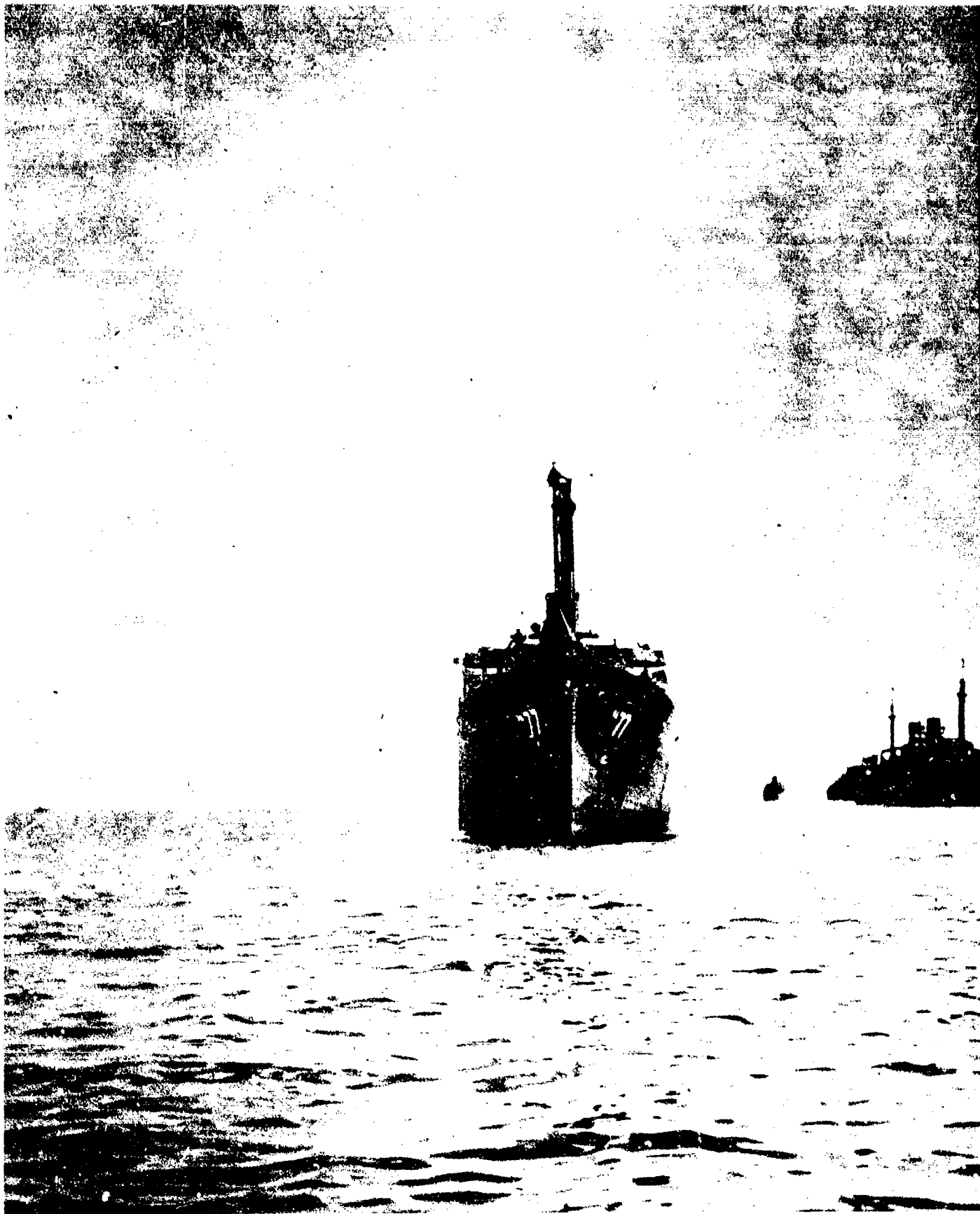
PHOTOGRAPHS

TEST BAKER

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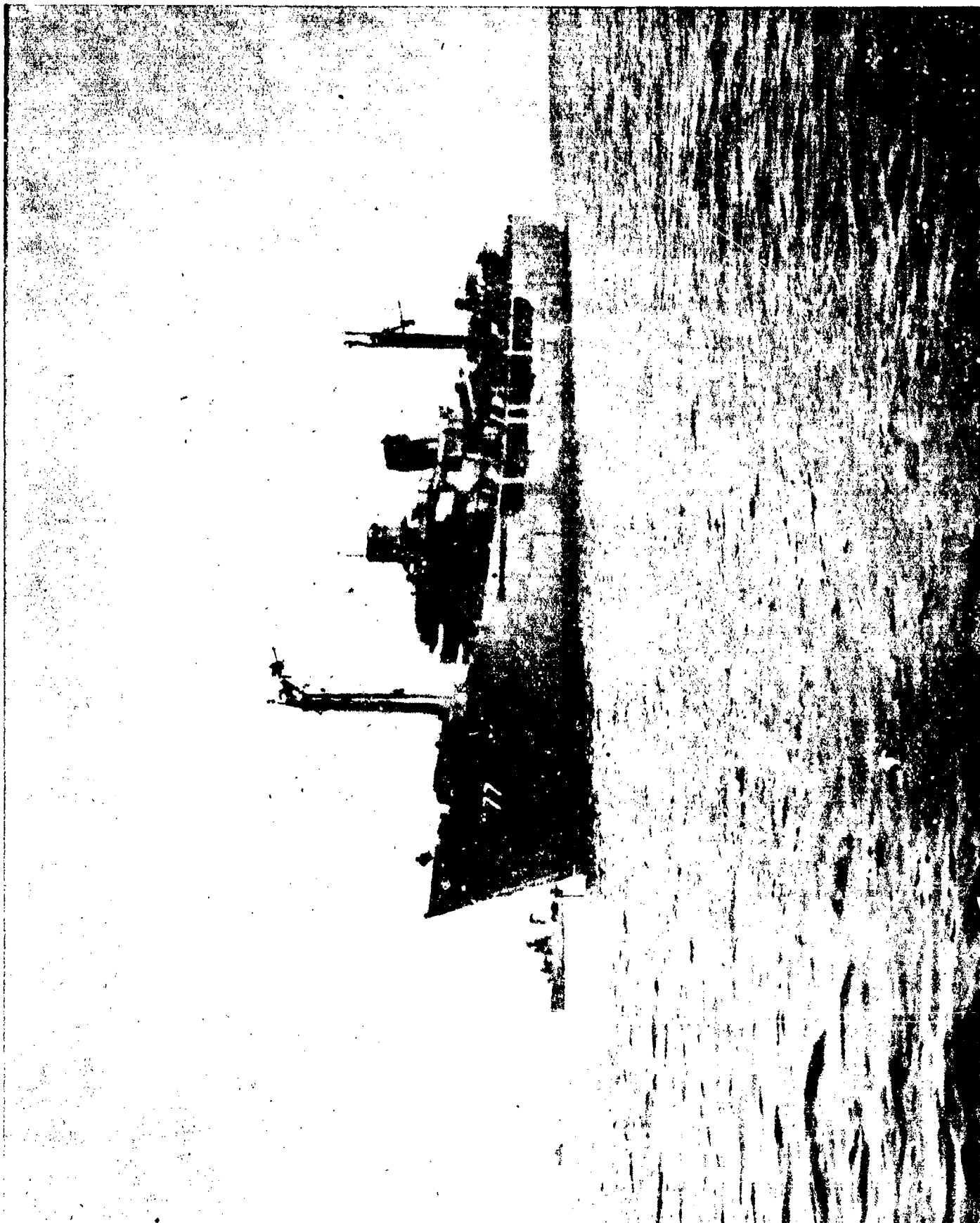
AB-CR-227-243-43. View from dead ahead after Test B.

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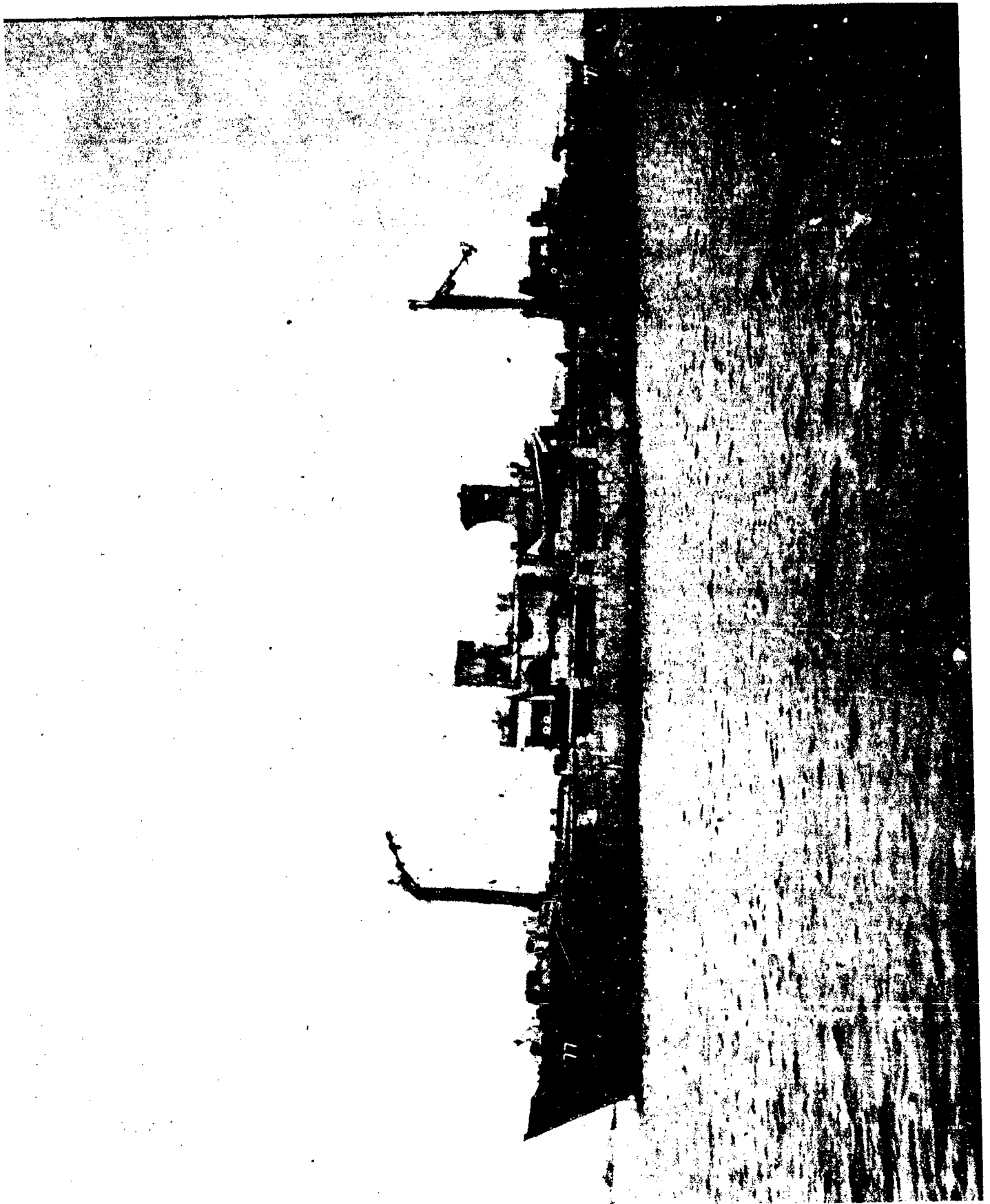
AB-CR-227-243-44. View from off port bow after Test B.

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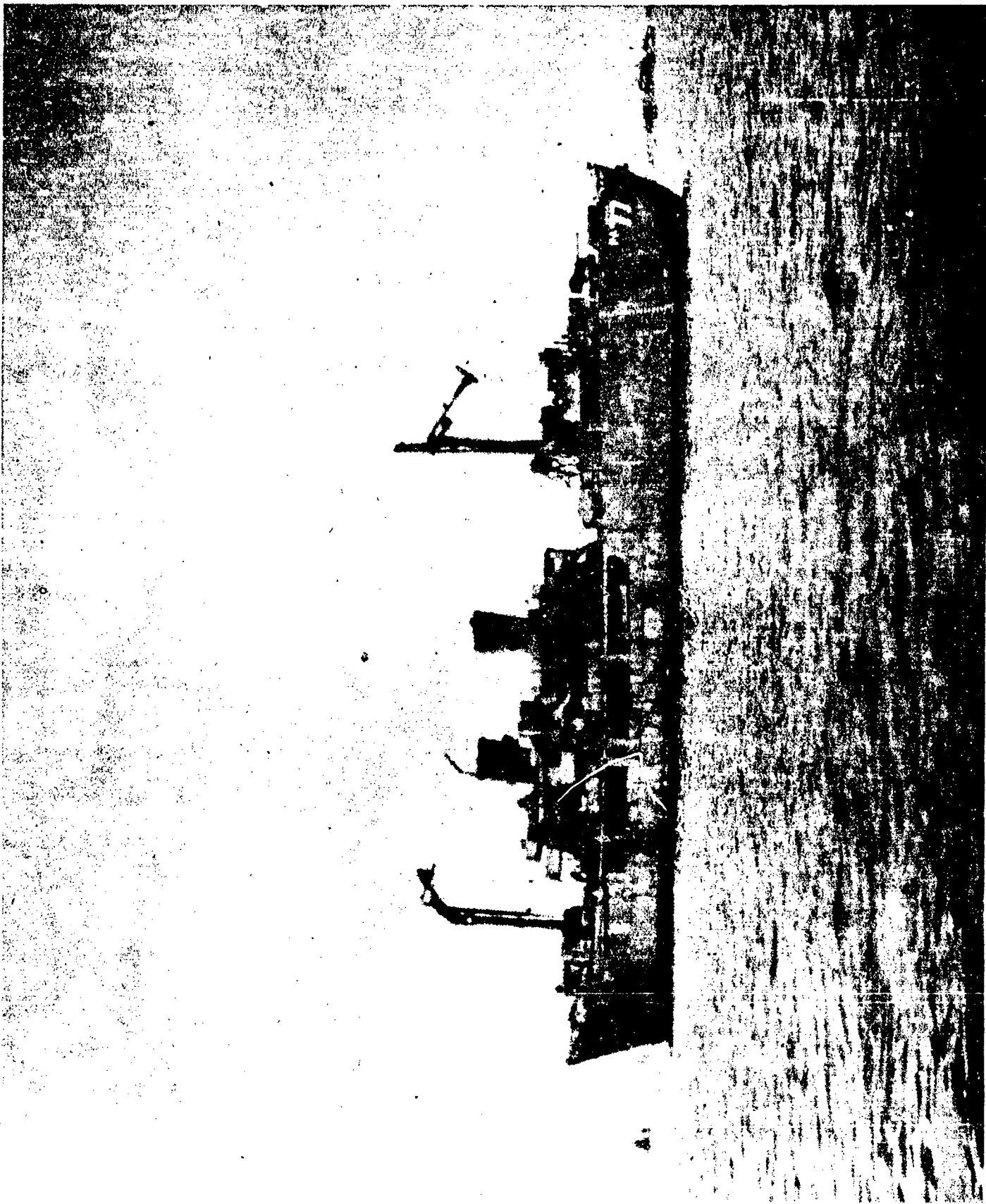
AB-CR-227-243-45. View from off port beam after Test B.

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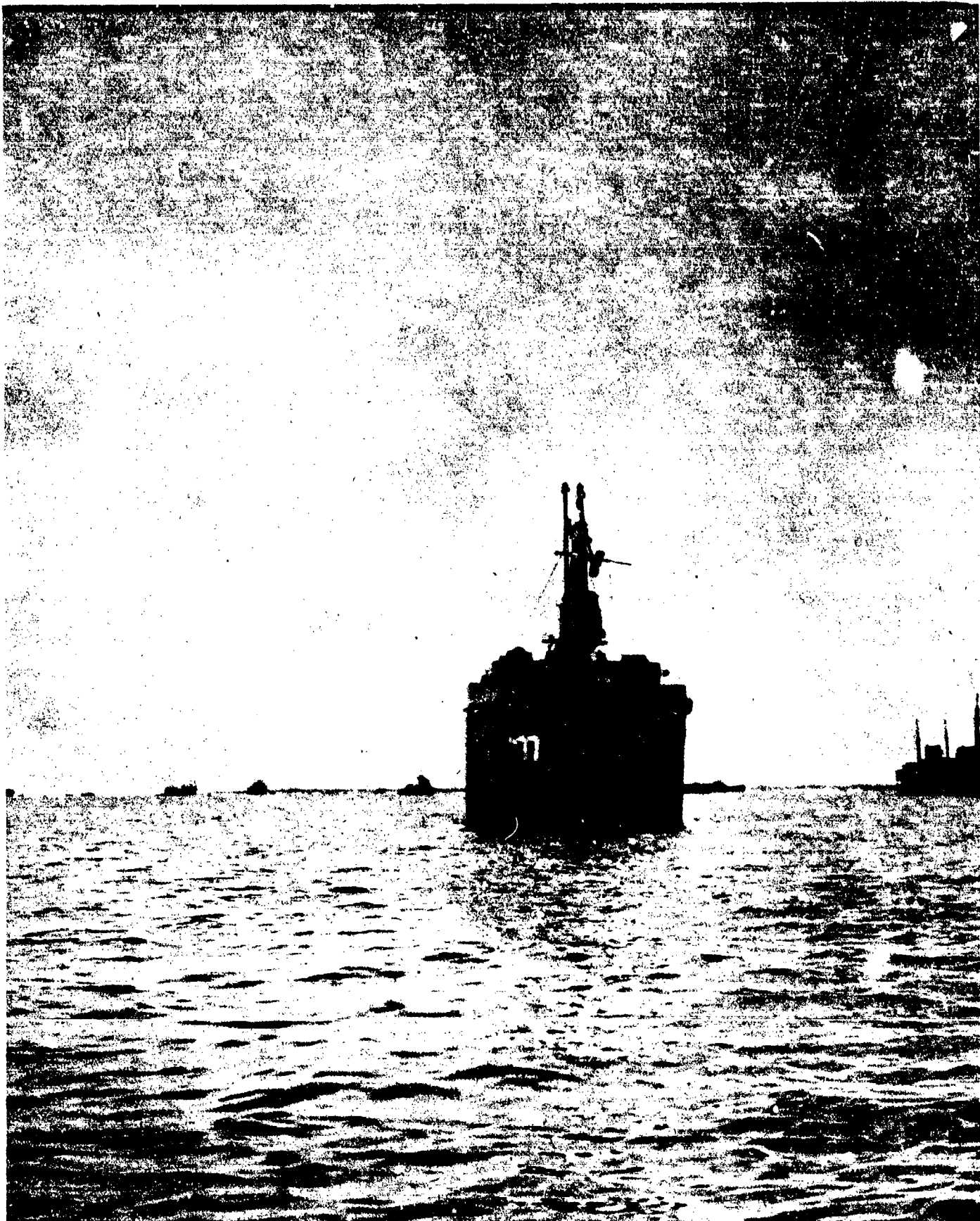
AB-CR-227-243-46. View from off port quarter after Test B.

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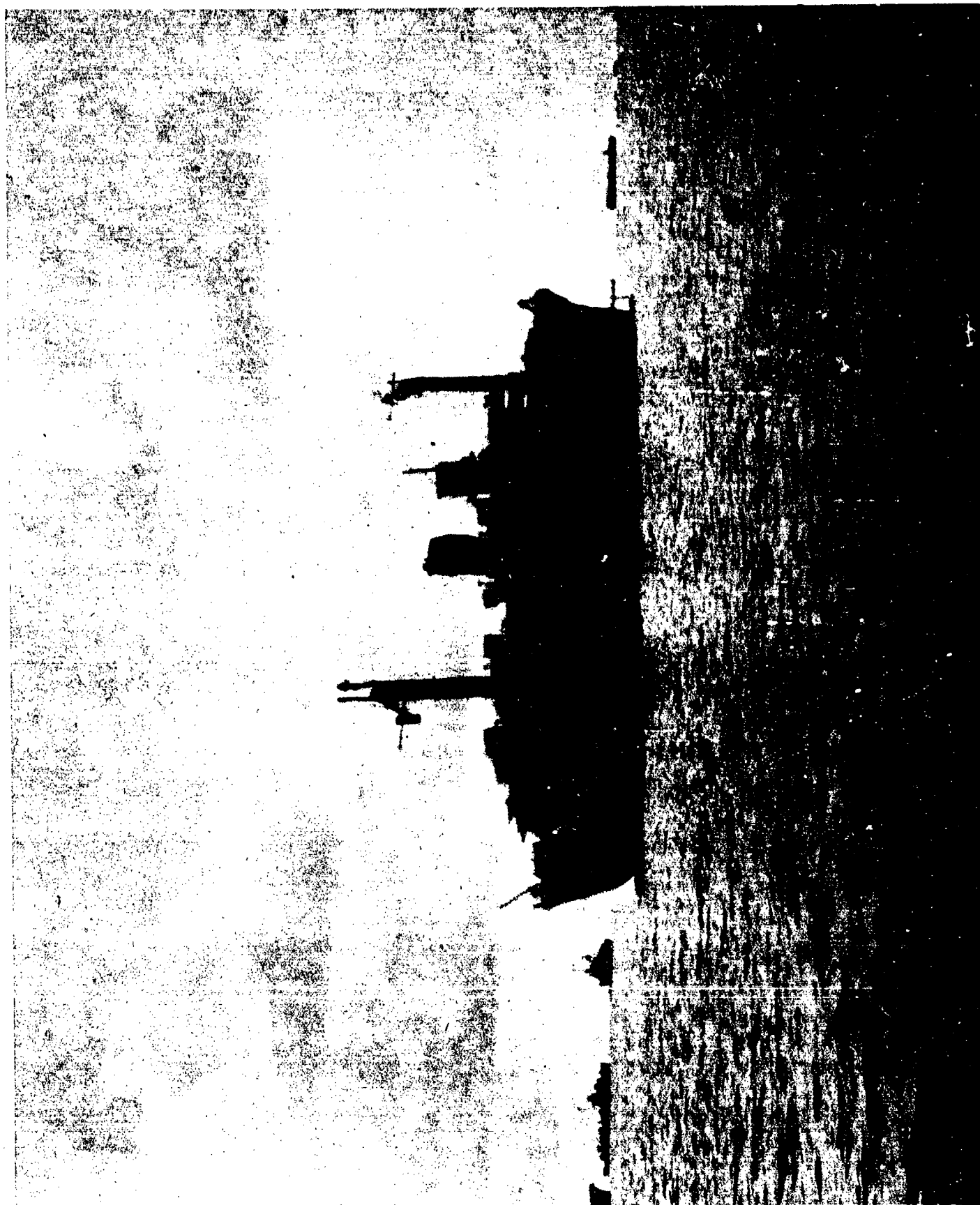
AB-CR-227-243-47. View from dead astern after Test B.

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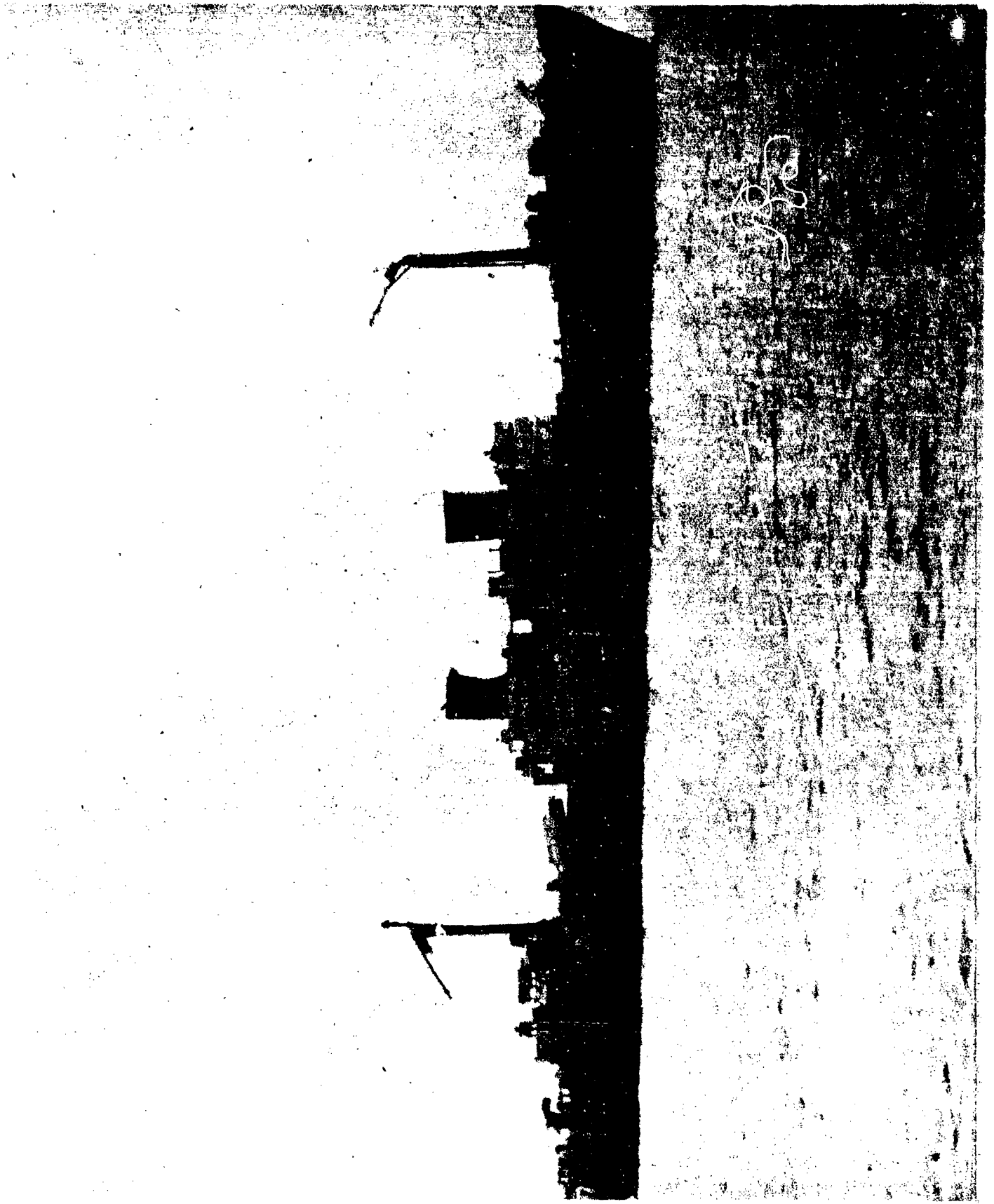
AB-CR-227-243-48. View from off starboard quarter after Test B.

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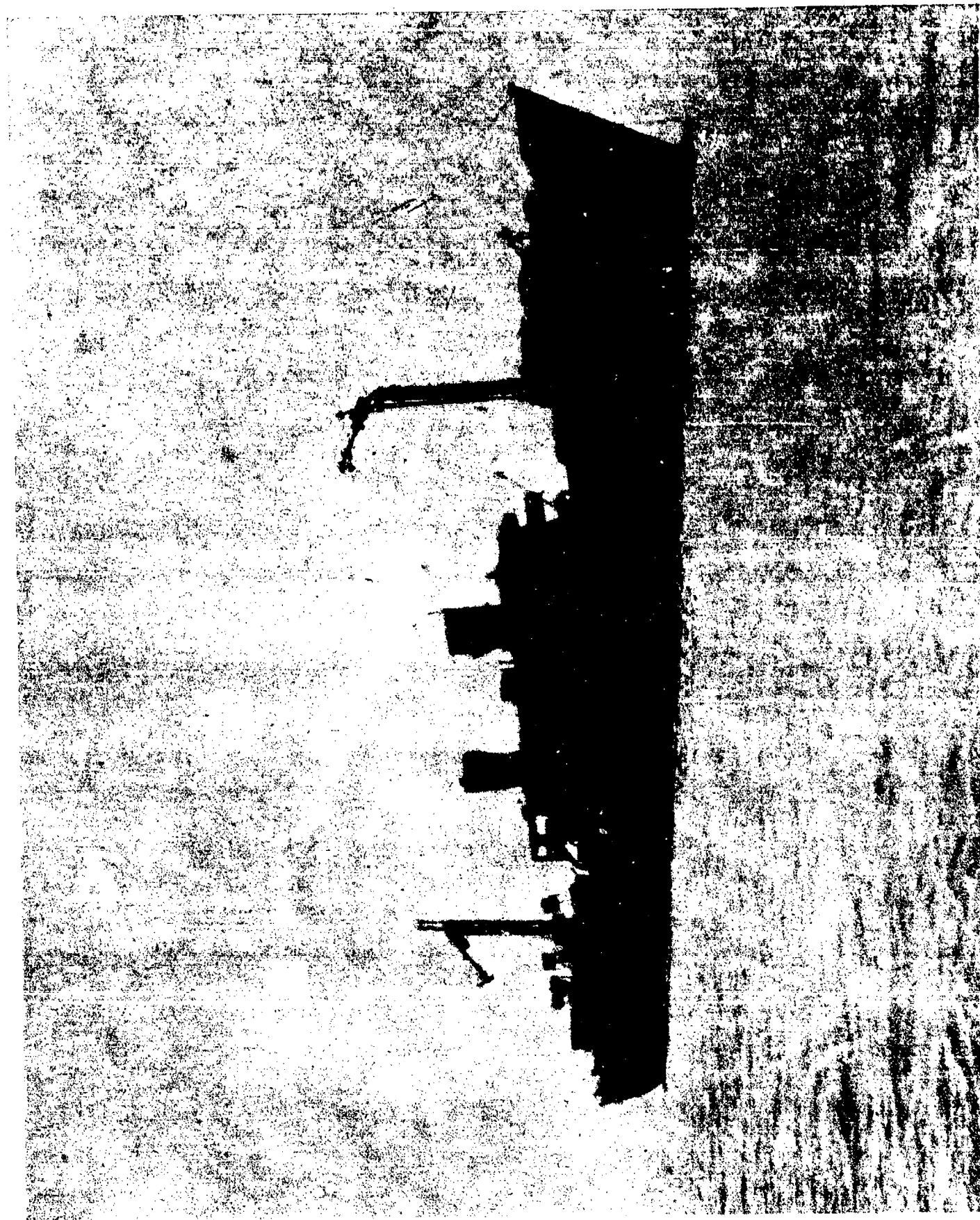
AB-CR-227-243-41. View from off starboard beam after Test B.

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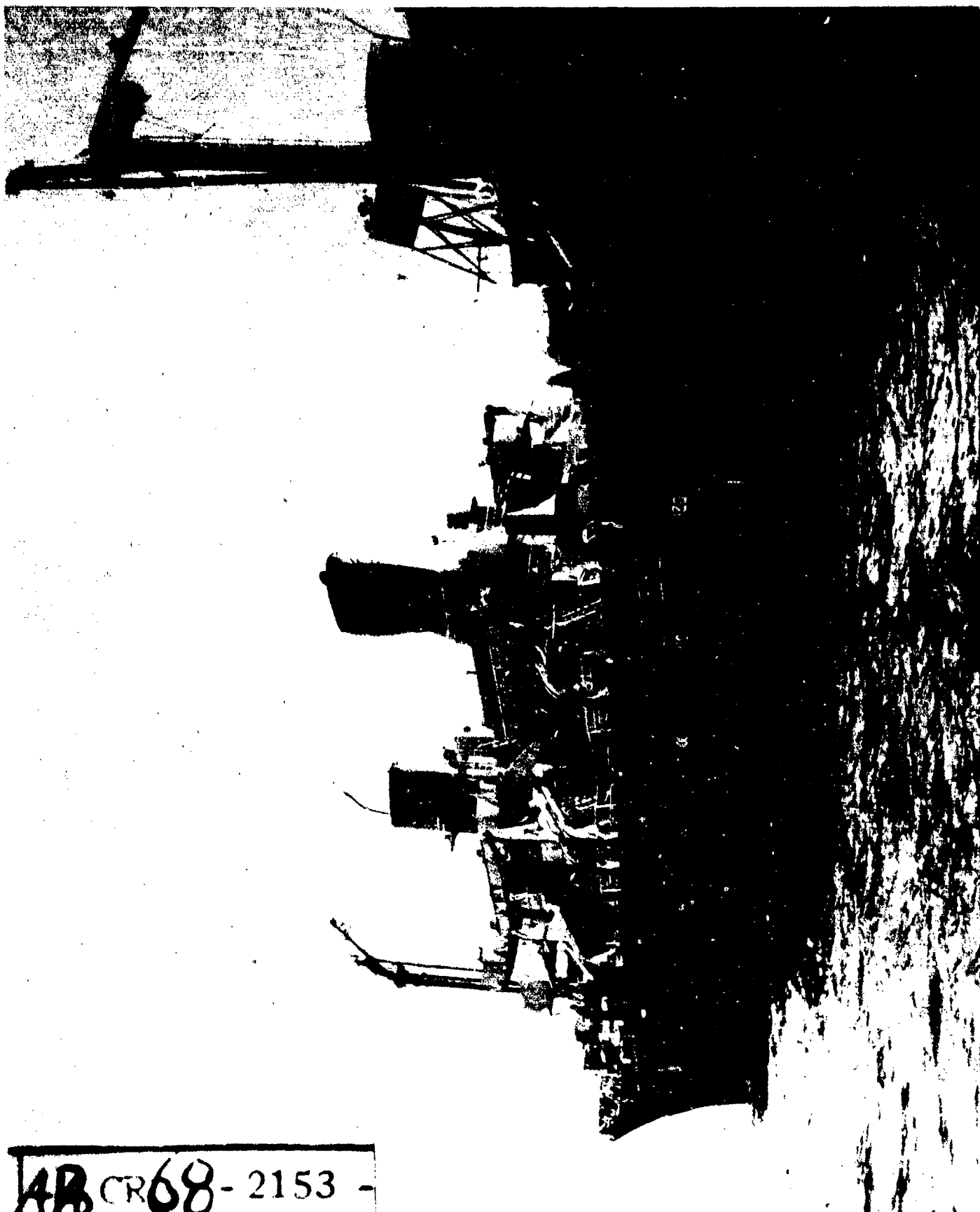
AB-CR-227-243-42. View from off starboard bow after Test B.

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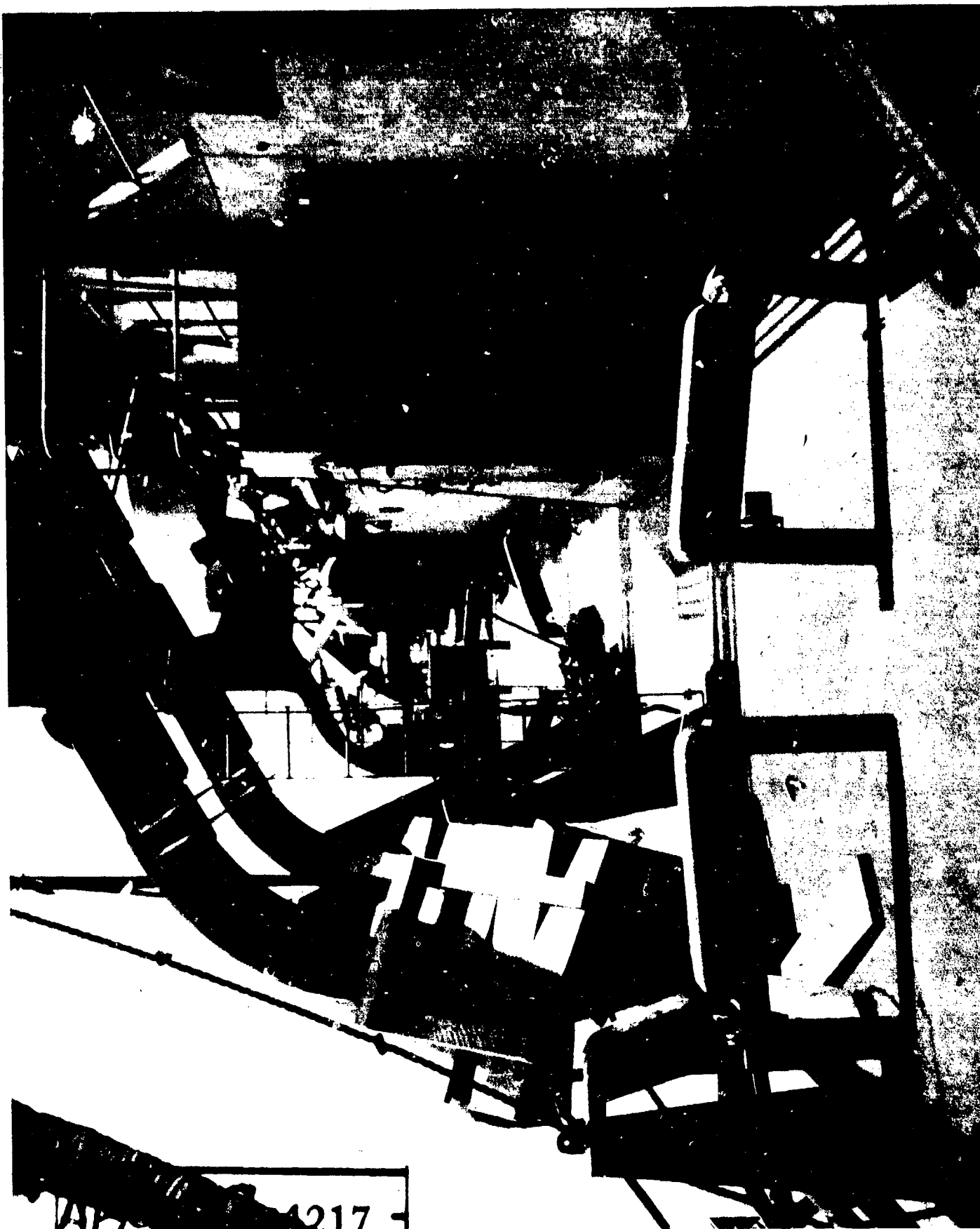
AB-CR-68-2153-10. View from off port quarter, bow to frame 142.

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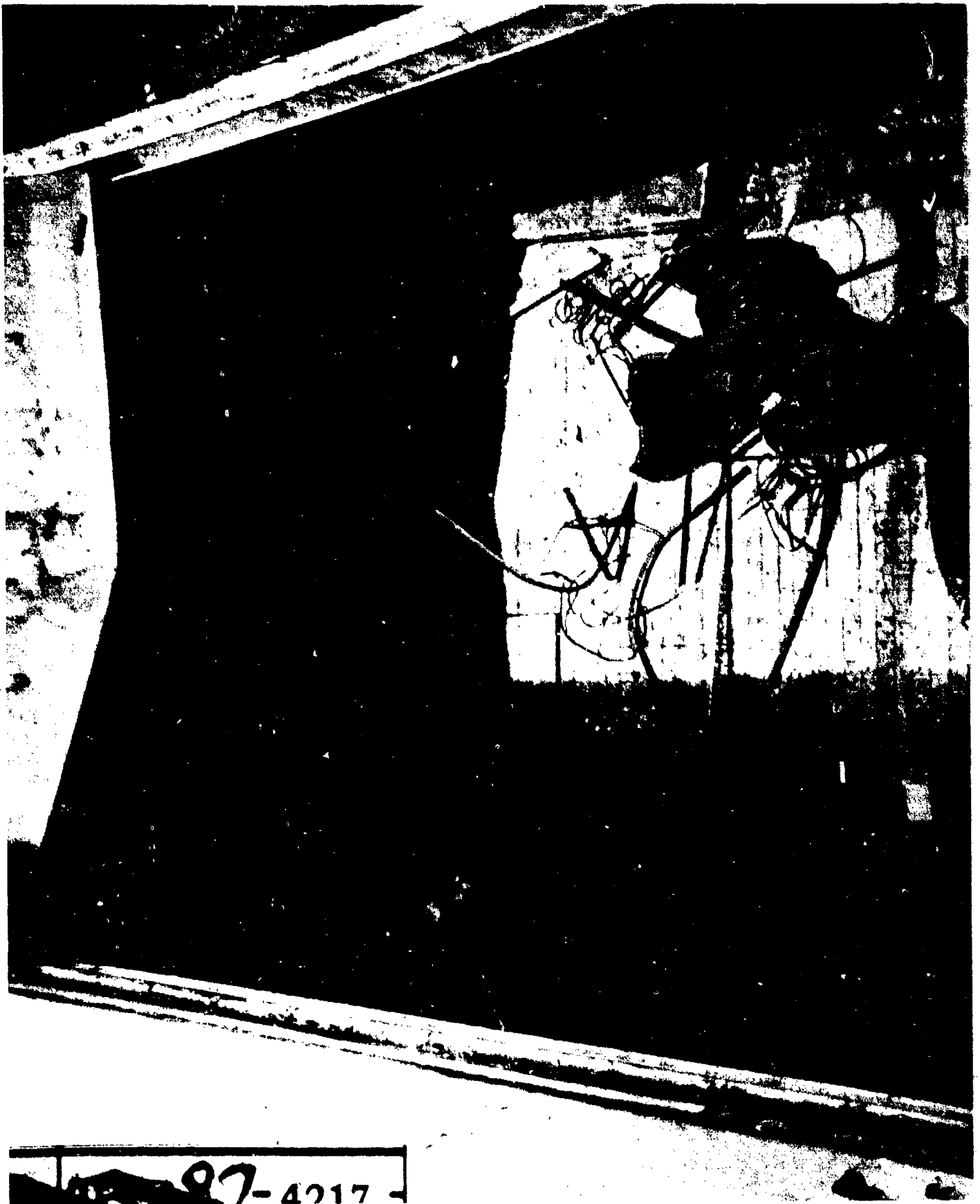
AB-CR-87-4217-6. Wood cover blown from access to Ordnance locker, upper deck, frame 83, starboard.

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87-4217 -

AB-CR-87-4217-9. After cargo hatch and damaged jury cover in hold.

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AB-CR-82-4217-10. Forward cargo hatch and damage jury rigged
cover in hold.

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AB-CR-82-4217-11. Damaged wood cover for troop ammunition hatch, upper deck, frame 59.

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AB-CR-87-4217-4. Fragment and dent in upper deck, frame 99, starboard, (fragment in place).

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AB-CR-87-4217-5. Dent in upper deck frame 99, starboard, caused by falling fragment (fragment removed).

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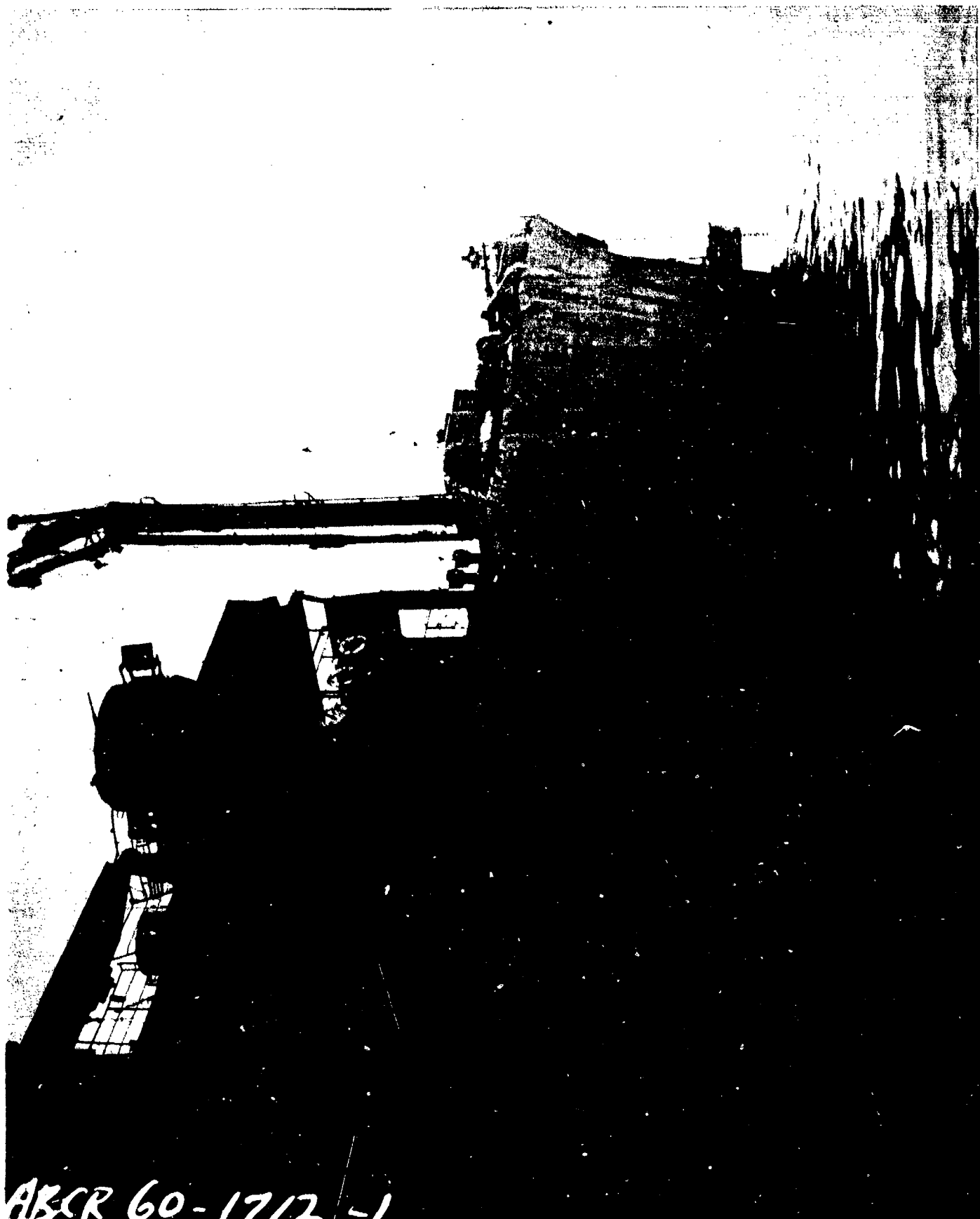
AB-CR-87-4217-8. Fragment and puncture in upper deck, frame 132 port.

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AB-CR-60-1712-1. Starboard side view, bow to frame 80.

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AB-CR-87-4217-2. Looking down starboard aft sides #1 uptake.

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AB-CR-87-4217-3. Top of #1 uptake starboard side.

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APPENDIX

COMMANDING OFFICERS REPORT

TEST BAKER

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COMMANDING OFFICERS REPORT

REPORT # 5

On twelve August 1946 the Commanding Officer with five ship's officers and eight petty officers boarded the CRITTENDEN for the purpose of opening up the ship to observe damage to same and to facilitate the inspection of ship by DSM personnel.

Draft before test B was observed to be:

Forward 8'6"
Aft 15'6"

Draft after the test when boarded was:

Forward 8'6"
Aft 17'6"

The reasons for the change in draft were not determined due to short time available for inspection but it appears that accumulation of rain water, water from washing down, plus leaks from pipe connections etc., into the bilges are responsible. No flooding was observed and no leaks of any consequence.

A monitor from Radsafe checked the radioactivity in various spots in the ship and recorded same. Tolerance was found to be one hour topside except in a few hot spots. Below decks the tolerance varied from 4 hours to 24 hours, depending upon how open or exposed certain places were such as around #1 and 2 hatches, troop ammunition hatch, and weather decks.

It was not possible to record much detailed information but the following data presents a sufficiently clear picture to be reliable. Members of the DSM team who possessed more tolerance time were able to record data and photograph a few items of interest.

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It may be stated authoritatively that very little additional damage was discovered, as a result of test B.. Damage that was incurred was apparently due to the same blast and pressure effect as experienced on the first test.

All canvas that had been replaced or repaired topside was ripped and torn. Practically a complete wooden cover had been built over #1 hatch and that in turn covered with a new tarpaulin. The wood and torn canvas was found at the bottom of #1 hatch, demolished. The same type of covering was used for the troop ammunition hatch. It too was torn apart, but only a few pieces were in that hold. This would indicate that the sidewise blast of pressure was more severe than the downward pressure. An angle iron frame was placed over #2 hatch and that in turn covered with a tarpaulin. The twisted metal frame was found at the bottom of the hold, and the torn canvas was lying in various locations.

A substitute wooden wardroom door had been constructed and shored against any prospective pressure. This shoring held except for some of the planks which had been pushed inward by the outside pressure. Another door nearby and just aft of the wardroom door, at frame # 85 starboard side upper deck, was broken by the blast when some of the shoring carried away and ended up against #3 davit. A similar wooden door shored in the same manner over the carpenter shop entrance aft on the port side was subjected to enough pressure or blast to blow out part of the planking and mattress over same.

Mattresses and rags had been stuffed into various ports and small holes in bulkheads resulting from test A. Practically all of these mattresses and other materials were blown into the compartments. This also applied to the holes in bulkhead 59 (forward bridge structure). All heavy shoring consisted of 2 x 4 or 4 x 4.

Quite a number of what appeared to be parts of machinery or ships were scattered about the ship like shrapnel. Two places in the decks were fractured by pieces of these metals. One piece about 6" round made a small hole in the upper decking near the edge of the ship at frame 90. Another and larger fracture was at frame 130 same deck port side near carpenter shop. Photographs were taken by the DSM representatives.

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Apparently the shaking up results from the bomb were minor. Very little debris could be found except in spots where the lagging and ventilation system received additional damage; this was noticeable around the two hatches. No major changes in bulkheads were observed. The overhead in the CPOs quarters starboard side main deck seemed to have been bent downward another 4", as indicated by the bunk stanchions in that area.

jury radio antenna rigs that had been installed topside, appeared to be satisfactory for operation, although some were down. No additional hull damage was observed above decks. The belly float etc., on the plane left on board, was found lying on deck where it had fallen; also some of the metal plates covering the fuselage. Plane was off blocks.

Guns and ammunition (including test) were unchanged and appeared same as in Test A.

The forward end of the starboard boat boom fell out of its cradle and hung by its gooseneck. Taffrail log boom port side aft carried away. Also a small hole pierced in starboard side about frame 4.

No additional hull damage was observed except between frames 40 and 50 where it seemed that there were more dents in the ship's side. Without closer examination it would be difficult to tell whether this would be the result of bomb damage, or tugs, etc., coming along-side.

Maximum and minimum thermometers on magazine or clipping room doors A-0101-M and C-0104-M were broken in half.

Small amount water covering deck in #1 and 2 holds, due to not being covered. An oil film was noted on surface in No. 1 hold, probably from machinery in that hold. Noted other inspection party that was inspecting test machinery in #1 hold. From topside there seemed to be no change.

Radio broadcast amplifier in crews compartment (mess) port side main deck B-102-J, knocked off rack and lying on deck. Drinking fountains further damaged by blast. Medical supplies in laboratory jumped out of racks and are broken and scattered around. This may have been

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due to the roll. Temporary canvass screens used to replace missing metal sheathing in office spaces, were torn down by the blast, but the canvass itself was not damaged.

Engine rooms showed signs of being shaken but no serious damage observed. Clinometer showed 18 degree starboard roll and 28 degree port roll. About 1 and 1/2" fuel oil in bilges after part of forward engine room, port side. This might have been due to leak from tanks underneath when ship rolled. No other large or small leaks could be observed. Other bilges fairly dry. Boiler casing #1 boiler appears to have bulged outward more than was caused by previous Test A. Forward engine room bulkhead also seems to have a bulge in it at about the first platform level. Boiler brickwork appeared satisfactory. Same with boilers.

Steering Engine room has an oil leak in the lines as there is a small amount of oil on deck in port after corner. The rams seemed to indicate almost full movement of the rudder, but the rudder angle indicator shows only about a six degree left rudder.

Shafts alleys appeared satisfactory. Small amount of water on deck in forward part of shaft alley, but nothing unusual. It is possible that bilges under shaft alley may be full, which would account for the down by the stern draft. Inspection party did not have sounding facilities to determine soundings of various tanks.

The general impression obtained from the inspection of the ship indicated that additional checks should be made on machinery, etc., before any attempt is made to estimate further damage. Also bulkhead measurements should be taken to see how much additional distortion, if any, was incurred. From a general overall picture, the ship seems to be changed very little. The previous estimate of two weeks to get it in shape for steaming must be revised, however. With the limited personnel now on board almost double that time would be required to clean up the accumulated oil and water leaks, cover the hatches, test out equipment, etc.

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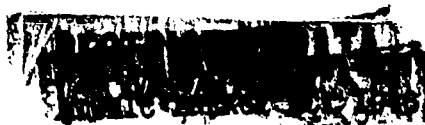
It is recommended that the ship be towed to Pearl (if it is intended to make further studies of its damage), as considerable man hours could be saved thereby, as well as weathering of damaged equipment. The longer the ship is held here, the more the interior and exterior parts are being subjected to weather. Also, if the towing is made in good weather it might be possible to avoid cutting of the top masts, etc., and leave them available for examination at the shipyard. If the foretop mast drops off, however, it is apt to go through the bottom of the ship. As soon as the radioactivity of the vessel permits it would be advisable to examine the stacks and topmasts to determine whether they could be left as they are. If no personnel are kept on board it might be worth the gamble to leave all damaged parts as they are. If work requests will be required, it is assumed that the ship will be notified accordingly by DSM representatives.

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Classification (~~Canceled~~) (Changed to **CONFIDENTIAL**)
By Authority of Joint Chiefs of Staff Action of 15 April 1949
By James H. Doolittle Date 24 Apr 51
1st Lt. AFSP



CONFIDENTIAL



Defense Special Weapons Agency
6801 Telegraph Road
Alexandria, Virginia 22310-3398

TRC

18 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER
ATTENTION: OMI/Mr. William Bush (Security)

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency has declassified the following reports:

✓AD-366588✕	XRD-203-Section 12✓
AD-366589✓	XRD-200-Section 9
AD-366590✓	XRD-204-Section 13
AD-366591✓	XRD-183
✓AD-366586✕	XRD-201-Section 10✓
✓AD-367487✕	XRD-131-Volume 2✓
✓AD-367516✕	XRD- 13 143✓
✓AD-367493✕	XRD-142✓
AD-801410L✓	XRD-138
AD-376831L✓	XRD-83
AD-366759✓	XRD-80
✓AD-376830L✕	XRD-79✓
✓AD-376828L✕	XRD-76✓
✓AD-367464✕	XRD-106✓
AD-801404L✓	XRD-105-Volume 1
✓AD-367459✕	XRD-100✓

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Subject: Declassification of Reports

✓ AD-367517 ✕	XRD-141 ✓
AD-366762 ✓	XRD-84
AD-366760 ✓	XRD-81
AD-366761 ✓	XRD-82
AD-367501 ✓	XRD-158-Volume 1
AD-367507L ✓	XRD-152-Volume 4
✓ AD-367495 ✕	XRD-184 ✓
✓ AD-367485 ✕	XRD-129 ✓
• AD-367484 ✕	XRD-128 ✓
AD-367483 ✕	XRD-127 ✓
AD-367482 ✕	XRD-126 ✓
AD-367488 ✓	XRD-132
AD-367480 ✕	XRD-124 ✓
AD-801409L ✓	XRD-135
AD-367490 ✕	XRD-136 ✓
AD-367492 ✕	XRD-137 ✓
AD-801411L ✓	XRD-139
AD-367518 ✕	XRD-140 ✓
AD-367515 ✓	XRD-144
AD-367514 ✓	XRD-145
AD-367468 ✕	XRD-110-Volume 2 ✓
AD-367513 ✓	XRD-146
AD-367497 ✕	XRD-162 ✓

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18 April 1997

Subject: Declassification of Reports

AD-801406L ✓ XRD-114.

In addition, all of the cited reports are now **approved for public release; distribution statement "A" now applies.**

Arldith Jarrett
ARDITH JARRETT
Chief, Technical Resource Center